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BIRCH, STEWART, KOLASCH & BIRCH, LLP
8110 Gatehouse Road, Suite 100 East
P.O. Box 747
Falls Church, VA 22040-0747

EXAMINER

LAZORCIK, JASON L

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte FRANK FILSER, LUDWIG GAUCKLER, PETER KOCHER,
HEINZ LUETHY, and PETER SCHAEERER

Appeal 2010-011660
Application 09/623,268
Technology Center 1700

Before CHARLES F. WARREN, PETER F. KRATZ, and
JEFFREY T. SMITH, *Administrative Patent Judges*.

SMITH, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

This is an appeal under 35 U.S.C. § 134 from the final rejection of claims 16-34 and 41-46, all of the pending claims.¹ We have jurisdiction under 35 U.S.C. § 6.

Appellants' claimed invention relates to a process for the production of an artificial tooth substitute. Spec. ¶ [0001].² Claim 16 is illustrative:

16. A process for production of an artificial tooth substitute to be fitted on a prepared dental stump comprising the steps of:

(1) processing ceramic powder to form a homogeneous blank of porous ceramic material;

(2) determining a relative density ρ_R and an achievable relative density ρ_S after sintering for the blank of porous ceramic material selected in step (1);

(3) calculating an enlargement factor (f) for the obtained data in accordance with the following

$$f = \sqrt[3]{\frac{\rho_S}{\rho_R}}$$

where ρ_R is the relative density and ρ_S is the achievable relative density after sintering determined in step (2);

¹ See 37 C.F.R. § 41.31(a)(1).

² We note that Appellants' references to the Specification in the Brief refer to the Substitute Specification filed May 3, 2004. App. Br. 7. We also note that Appellants submitted a corrected Substitute Specification on May 17, 2004 which corrects printing errors in ¶¶ [0020] and [0025] related to the proper mathematical operators for the enlargement factor formula. For the purposes of this Decision, all of our references to Appellants' Specification are to the corrected Substitute Specification filed May 17, 2004.

(4) scanning and digitizing a three-dimensional outer and inner surface of a positive model of a skeletal structure for the artificial tooth substitute to obtain data;

(5) enlarging the obtained data linearly in all directions by the enlargement factor (f) calculated in step (3) thereby compensating precisely for sinter shrinkage to obtain modified data for an enlarged model;

(6) transferring the modified data to a control unit of a processing machine;

(7) processing the blank of porous ceramic material selected in step (1) in the processing machine and removing material therefrom to produce a design form of the enlarged model;

(8) sintering the design form of porous ceramic material to obtain a skeletal structure having precise end dimensions;

(9) facing the skeletal structure as desired to form the artificial tooth substitute; and

(10) repeating steps (1) through (9) for each artificial tooth substitute to be produced.

The Examiner relied on the following references in rejecting the appealed subject matter:

Wohlwend	US 6,106,747	August 22, 2000
Guiot et al.	US 6,287,121 B1	September 11, 2001

S. Jill Glass et al. (Glass), *Ceramic Powder Compaction*, AM. CERAMIC SOC'Y INT'L SYMP. ON MANUFACTURING PRAC. AND TECH. 1, (1995).

Letter from John W. Halloran, Ph.D. (Halloran), A.H. White Collegiate Professor and Chair, Univ. of Michigan Coll. of Eng'g, to Professor Ludwig Gauckler, Nonmetallic Inorganic Materials (April 6, 2004) (on file with author).

Appellants appeal the following rejections as set forth in the Final Office action:

1. Claims 16-34, 41-43, and 45 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Wohlwend and Halloran.
2. Claim 44 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Wohlwend, Halloran and Guiot.
3. Claim 46 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Wohlwend, Halloran and Glass.

OPINION

Rejection of Claims 16-34, 41-43, and 45³

The dispositive issue on appeal is: Did the Examiner err in determining that Wohlwend would have rendered obvious to one of ordinary skill in the art a method of producing an artificial tooth substitute using an enlargement factor as required by the subject matter of independent claims 16, 32, 33, 44, and 45?⁴

We answer this question in the negative and, therefore, we AFFIRM. We affirm for the reasons presented by the Examiner and add the following.

³ Our discussion of this rejection focuses only on the primary reference to Wohlwend. We find that the letter from Halloran is unnecessary for disposition of this appeal and, thus, we limit our discussion to the arguments directed only to Wohlwend. Our position relies on substantially the same portions of Wohlwend relied upon by the Examiner. Accordingly, our positions do not constitute new grounds of rejection because the thrust of the rejection remained the same. *See In re Jung*, 637 F.3d 1356, 1365 (Fed. Cir. 2011), *citing In re Kronig*, 539 F.2d 1300, 1303 (CCPA 1976).

⁴ Appellants did not argue most of the claims listed above separately in the principal Brief. Accordingly, we will limit our discussion to independent claim 16. Claims argued separately will be addressed separately.

We agree with the Examiner's determination of obviousness based on Wohlwend. Ans. 4-5. It is undisputed that Wohlwend teaches a method of forming dental prostheses that is similar to the claimed invention, including using an appropriate enlargement factor. *Id.* at 4, 7; App. Br. 13. According to Appellants' Specification, the enlargement factor describes a property of the ceramic blank used in making the dental prosthesis. Specification ¶¶ [0030], [0033]. While Wohlwend does not explicitly disclose the enlargement factor property described by the claimed invention, Wohlwend does disclose an enlargement factor to compensate for shrinkage during sintering. Ans. 5.

Appellants argued that Wohlwend fails to disclose the claimed enlargement factor. App. Br. 15. Appellants further argued that Wohlwend also fails to disclose a linear relationship between the enlargement factor and the shrinkage of the blank upon sintering. *Id.*

We are unpersuaded by these arguments and agree with the Examiner's reasoning that the property specified by the claimed enlargement factor would have been obvious to one skilled in the art. Ans. 5. The Examiner has articulated an adequate reasoning to support the legal conclusion that the claimed enlargement factor formula would have been obvious to one skilled in the art by explaining how Appellants' claimed enlargement factor formula is a mathematical representation for the fractional volume shrinkage of a material taking into account the density of the material. *Id.* As correctly noted by the Examiner, Wohlwend discloses an enlargement factor and also recognizes the shrinkage impact on the material for the dental prosthesis. Wohlwend, col. 1, ll.55-65; Ans. 19. Appellants use of a mathematical formula to define the same process

parameter taught by Wohlwend using other words, does not render patentable the claimed process which is obvious over Wohlwend's disclosed process. *Cf., e.g., In re Skoner*, 517 F.2d 947, 950-51 (CCPA 1975) ("Appellants have chosen to describe their invention in terms of certain physical characteristics Merely choosing to describe their invention in this manner does not render patentable their method which is clearly obvious in view of [the reference]." (citation omitted)). Appellants have not explained why their enlargement factor is necessarily any different from the enlargement factor disclosed by Wohlwend.

Appellants additionally argued that the Examiner's reasoning is based on improper hindsight because of the Examiner's assumption of conservation of mass on which it is based would only work with two specific preconditions not acknowledged by Wohlwend. App. Br. 16. Appellants also argued that the precondition relationships/factors are only disclosed by Appellants. *Id.*

We are unpersuaded by these arguments as well for substantially the reasons articulated by the Examiner. In this regard, the conservation of mass and the use of a blank with a substantially homogenous density distribution would have been reasonably expected to be known attributes for the processing steps and the materials used in forming a tooth substitute. Appellants have not specifically directed us to any persuasive evidence that would substantiate Appellants' argument to the effect that such knowledge originated with Appellants. Appellants have not pointed to any particular section of the Specification to support the allegation that Appellants were the first to know and disclose these characteristics for a tooth substitute material/blank. Thus, we find no error in the Examiner's conclusion that

Wohlwend would have rendered obvious to one of ordinary skill in the art a method of producing an artificial tooth substitute using an enlargement factor as required by the subject matter of independent claim 16.

With respect to independent claim 45, Appellants additionally argued that Wohlwend does not teach the steps to ensure the labeling of a blank with its respective calculated enlargement factor. *Id.* at 20. We agree with the Examiner that providing information concerning a blank in the form of an optically readable label would have been obvious to one skilled in the art for the reasons advanced by the Examiner. Ans. 9. Appellants' arguments do not adequately address these reasons.

For the foregoing reasons and those presented by the Examiner, we sustain the rejection of claims 16-34, 41-43, and 45 under 35 U.S.C. § 103(a) as being unpatentable over Wohlwend.

Rejection of Claims 44 and 46

We note that the Examiner rejected independent claim 44 under 35 U.S.C. § 103(a) as unpatentable over Wohlwend, Halloran and Guiot (Ans. 9-11) and independent claim 46 under 35 U.S.C. § 103(a) as unpatentable over Wohlwend, Halloran and Glass (*id.* at 11-13). Appellants rely on the arguments discussed above with respect to independent claim 16 and argue that neither Guiot or Glass overcome the alleged deficiencies of Wohlwend. App. Br. 21, 22. Accordingly, we will also sustain these rejections for the reasons given above.

ORDER

The rejection of claims 16-34, 41-43, and 45 under 35 U.S.C. § 103(a) as being unpatentable over Wohlwend and Halloran is affirmed.

Appeal 2010-011660
Application 09/623,268

The rejection of claim 44 under 35 U.S.C. § 103(a) as being unpatentable over Wohlwend, Halloran and Guiot is affirmed.

The rejection of claim 46 under 35 U.S.C. § 103(a) as being unpatentable over Wohlwend, Halloran and Glass is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(v).

AFFIRMED

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